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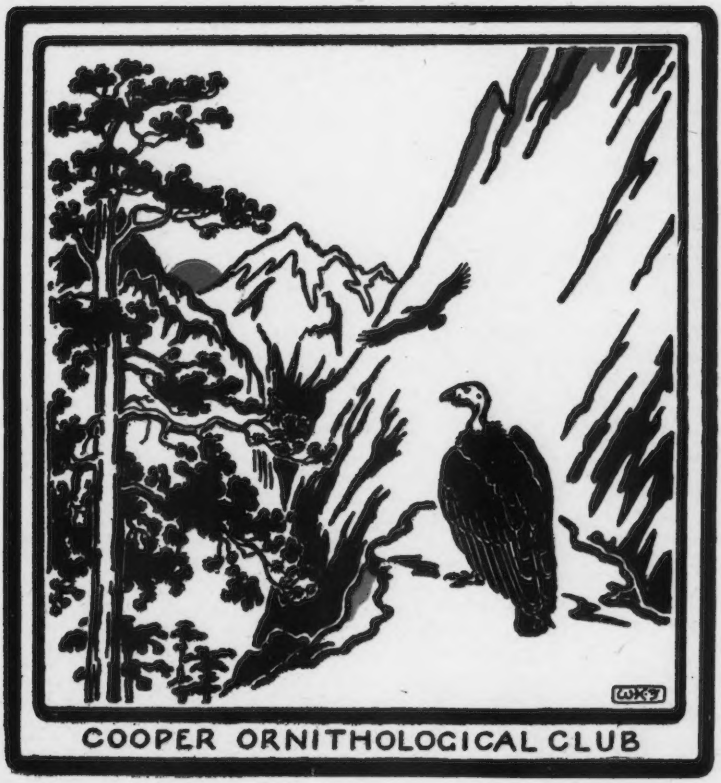
THE CONDOR

A Magazine of Western Ornithology

Volume XXVI November-December, 1924 Number 6



COOPER ORNITHOLOGICAL CLUB

THE CONDOR

A Magazine of Western Ornithology

Published Bi-monthly by the Cooper Ornithological Club

Entered as second-class matter January 25, 1922, at the post-office at Pasadena, California, under Act of Congress of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917. Authorized January 5, 1921
Issued from the Office of THE CONDOR, 514 Lester Avenue, Pasadena, California

SUBSCRIPTION RATES

Three Dollars per Year in the United States, payable in advance.
Fifty Cents the single copy.
Three Dollars and Twenty-five Cents per Year in all other countries in the International Postal Union.

COOPER CLUB DUES

Three Dollars per year for members residing in the United States.
Three Dollars and Twenty-five Cents in all other countries.

Manuscripts for publication should be sent to the Editor, J. GRINNELL, Museum of Vertebrate Zoology, University of California, Berkeley, California.
Requests for missing or imperfect numbers should be made of the Business Manager, as addressed below, within thirty days of date of issue.
Cooper Club Dues, Subscriptions to The Condor, and Exchanges, should be sent to the Business Manager.
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W. LEE CHAMBERS, Business Manager, Drawer 123, Eagle Rock, California.

Issued November 15, 1924

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THE CONDOR

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Volume XXVI November-December, 1924 No. 6

[Issued November 15]

THE STUDY OF BIRD SOUNDS

By ARETAS A. SAUNDERS

IN A RECENT number of the CONDOR Mr. Richard Hunt[1] proposes a new method of studying bird sounds. Having made a study of bird sounds and songs for a number of years, and having once myself proposed a method of studying and recording them,[2] I am much interested in Mr. Hunt's proposal. I hope that what I have to say now will aid in unifying and clarifying our ideas on the subject and that what criticism I have to offer will be considered constructive.

Mr. Hunt's chief contention is that bird sounds are "human speech-like." When I first read his article I did not fully comprehend just what he meant by this, but thinking it over, trying it out in the field on actual bird sounds, I believe I now do, and am in a position to discuss and criticize. If bird sounds are more like human speech than human singing, then it is pertinent to inquire what is the difference between human speech and human singing. In singing, the important things are time and pitch. In speech the important factor is pronunciation. A person may sing a tune with different sets of words at different times, or with no words at all, and the music remains the same. A person may say the same thing over in high or low pitched voice, rapidly or slowly, but what he says remains the same. Pitch and time may help or hinder the expression of a speaker, and make what he has to say more or less impressive upon his hearers; but his words reduced to cold print are the same, no matter what time or pitch changes he may have used. Mr. Hunt's contention, therefore, means essentially that in bird sounds, pronunciation is more important than either pitch or time.

I regret my inability to use, as examples of what I wish to say, species whose notes and songs are likely to be familiar to California ornithologists as well as to myself, but even when the same species ranges in both states, it is likely that geographical variation will make the songs quite different. Listening carefully to various Connecticut species in the field, I find some in which the pronunciation factor stands out as an important and characteristic factor. The White-eyed Vireo is perhaps one of the best examples, and with it, the Water Thrush, the Canada and Wilson warblers, and, though not a common Connecticut species, the Cardinal. In

[1] The Phonetics of Bird Sound, by Richard Hunt; Condor, XXV, pp. 202-208.

[2] Suggestions for Better Methods of Studying and Recording Bird Songs, by Aretas A. Saunders; Auk, XXXII, pp. 173-183.

most other species the pronunciation factor is also present to a greater or less degree. The sounds may be distinguished and classified, as Mr. Hunt suggests, as musicals, explosives, fricatives, etc. (It seems to me, here, that the proper term for the *l* and *r* sounds, that Mr. Hunt calls "musicals," is "liquids.")

But even in the species I have named in which pronunciation stands out as a character of first importance, time and pitch are also easily distinguished and play an important part in the character of the bird's song. A White-eyed Vireo calls, and I write *Chick-weeah—chickeroo-chick.* Then I note without difficulty that the pitch of the first "chick" is two and a half tones below the "wee", that the "weeah" slurs downward three and a half tones. Similarly, I note that the "chick-weeah" occupies the same period of time as the "chickeroo-chick", and that the longest time and loudest accent is on the "wee." A graphic record of this song, with the phonetic rendering written beneath, will show all the points; but the phonetic rendering only, would show them only approximately. Determining the pitch and time of this song is as simple and easy as determining the phonetics, and much easier than to determine the pitch in the voice of a human speaker.

In such species as the White-throated and Field sparrows, I find it difficult to distinguish the pronunciation factor at all. The notes are pure, clear musical tones. Time and pitch are important characters. In the songs of such species, and of others such as the thrushes, Mr. Hunt's statement that bird sounds are more like human speech than human singing does not seem to me to apply in the least particular. In the voices of shore birds the musical factors are strong and the pitches clear and distinct. I have found no difficulty in determining pitches in the calls of gulls, the screams of hawks, and the various call and alarm notes of many species, that are not songs and are therefore not necessarily musical. There may be bird sounds wherein pitch is as difficult to determine as it is in the speech of a human being; but if so they are exceptions. To sum it up, bird sounds are simply sounds, sometimes like music, sometimes like speech, but to be studied scientifically from the standpoint of the physics of sound.

It is important that students of bird sound should agree as far as possible as to the factors to be described. Mr. Hunt names seven factors: pitch, intensity, rate of speed, form, expression, timbre, and phonetic quality. I named five: pitch, duration, intensity, quality, and pronunciation. We are perfectly agreed on "pitch" and "intensity." Mr. Hunt evidently means by "timbre" what I mean by "quality," and by "phonetic quality" what I mean by "pronunciation," so that we agree there, except in the names we use. I am willing to use Mr. Hunt's phrases, if the majority of students of bird sound favor them in preference to the ones I have been using. "Quality" is the term most commonly used by the physicist, while "timbre" is used by the musician. The physicist is more scientific than the musician, but possibly "timbre" is a better word, for "quality" has other meanings. If we use "quality" and "phonetic quality," there is chance for confusion. "Phonetic quality" is a little long for a term, and I think not so good as "pronunciation"; but possibly simply "phonetics" is better than either.

Since my first writing on this subject I have changed my word "duration" for the shorter, simpler word "time." I meant the same in either case, but "time" is more inclusive, and includes Mr. Hunt's "rate of speed", though I fail to see why the simple word "speed" does not mean the same thing as "rate of speed", or if we must have a longer, more scientific sounding word, call it "velocity." Time, however, is the main factor, including velocity, acceleration, retard, rhythm, rests, duration,

and perhaps other things that someone may want to include as new factors. There are, then, in my estimation five factors of bird sound: pitch, time, intensity, quality or timbre, and pronunciation or phonetics.

It is often possible for two or more of these factors combined in a single note or phrase to produce peculiar sound effects that are often the specific characters of the songs of certain species. These combination effects are, in my estimation, what Mr. Hunt would class as "form" and "expression." He gives "staccato" as an example of "form." A staccato note is a note short in duration, of even rather loud intensity, followed by a sudden abrupt pause. Therefore I should say that staccato is a combination of time and intensity.

It seems to me that expression is also a factor that is produced by a combination of one or more of the other factors. The composer writes human music, and puts in expression by marks indicating changes in time or intensity. Quality may also have much to do with expression. Pitch and intervals of pitch between different notes also influence expression, for the composer writes bright, lively music in major keys and sad or dolorous music in minor, and the difference between major and minor, when there are no chords, as in bird music, is merely a matter of pitch intervals. I believe that the expression in bird sounds may be reduced to terms of pitch, time, intensity and quality, and that in itself it is not a separate factor. I am therefore still unconvinced that there are more than five factors to consider in the description of a bird sound.

Mr. Hunt states that his method, based on phonetics, provides for the recognition of all the factors of bird sound. He shows how it indicates relative pitch by the vowel sounds used. This is good as far as it goes, but why not measure pitch as accurately as we can? In my experience pitch of most bird sounds can easily be determined in the field, and I believe that anyone with a good enough musical ear to whistle a few bars of a tune and keep on the key can learn to do it by a little practise. There are many interesting and important things to be learned about bird song by determining accurate, rather than merely relative, pitch.

It is not quite clear to me how Mr. Hunt intends to record time, intensity and quality by phonetics. But, however it be, mere relative representation of these factors will not be satisfactory if they can be determined with greater accuracy by other means.

On the question of phonetics or pronunciation, Mr. Hunt has given an admirable classification of consonant sounds produced by birds, that ought to be helpful to all students in studying this factor in the field. In my first discussion of this factor I treated only the liquid consonant sounds, since these are among the commonest and in the more musical bird songs are often the only ones present. I devised a method of representing such a liquid consonant sound in a graphic representation of the song. Since then I have recorded many songs with consonants in them other than liquids, and have found no practical method of representing such sounds in the graph of the song. I have, however, represented them by writing beneath the graph a phonetic record similar to that which Mr. Hunt suggests. Such a record was published in discussion of a peculiar double song of the Cardinal (Auk, XLVIII, pp. 539-541). I believe that such a record gives as complete a representation of a bird sound as it is possible at present to make, with the single exception of the quality factor. If we write above the record a word or phrase descriptive of the quality, then we have the five factors complete. We sadly need a classification of sound

qualities that will make what we can learn of this factor more definite and uniform; for quality remains the one factor of bird song that is most difficult to describe and is least tangible.

The question of phonetics, however, may not be so simple as it seems. It is easy to distinguish liquid, explosive or fricative consonant sounds from each other, but it is not so easy always to distinguish between *l* and *r*, or between *p*, *k* and *t*. I believe, also, that birds produce consonant sounds that are often not to be represented by any letter or combination of letters in human alphabets. The best we can do in such cases is to come as near as we can to a phonetic representation of the sound.

The graphic method of recording bird sounds, which I proposed a number of years ago, may be regarded by some as a failure, since, so far as I am aware, no other student of the subject than myself has attempted to use it. To me, however, it seems no failure, for I have at the present time a collection of about three thousand bird sound records, including songs and calls of 128 species. The study of these records is of absorbing interest and brings out many interesting and important facts, only a few of which I have had time to write up for publication.

The chief reason why this graphic method has not been adopted by others is, I believe, because it calls for a more exact rendering of pitch and time factors in the field than other methods, and other observers have either been unable, or believed themselves unable, to do it. I found the work difficult and slow at first, but practise has made it comparatively easy. Some bird songs may be recorded as perfectly by musical notation as by the graphic method, in fact more than I supposed when I first started the study. But the graphic is much simpler, easier, and quicker to use in the field, and therefore more efficient.

For those who cannot determine exact pitch or time I might add that it is perfectly possible to use the principle of the graphic method, making records on plain paper without either horizontal or vertical lines, and get a good representation of the main characters of a bird song. I have used it in this way in teaching, and found that simple graphs on a blackboard are useful in teaching students the distinguishing characters of a given bird song. A somewhat similar method to this has been used (Wheeler and Nichols, Auk, XLI, pp. 444-451) in describing songs of the Song Sparrow, and though exact pitches were not noted, much of interest on the song of this bird was brought out clearly. Records of bird songs in which pitch and time are only approximate bear the same relation to accurate records that descriptions of birds in popular handbooks do to descriptions in scientific manuals. The inexact description serves admirably to teach others the main character of the song, and may therefore serve to make a greater number of efficient field students. But when one wishes to make a detailed study of the song, to work out problems of individual, geographical or seasonal variation, to recognize individual birds by song, to throw light on the problem of heredity versus imitation, the records should be as exact as it is possible to make them.

The study of bird sounds ought to be just as scientific a part of ornithology as is the study of plumages. Looking over ornithological literature for descriptions of bird sounds, one is impressed with the fact that it has not been so regarded in the past. It may be more difficult to describe a bird's voice than to describe its plumage, but that is no reason why we should not do it as accurately as we can. Many descriptions we have are merely fanciful, almost poetical, and probably not meant to be otherwise. Students using musical notation have disregarded other factors than pitch and time. Students using phonetic renderings have disregarded all save phonetics and perhaps relative pitch.

To describe all factors of a bird sound in the field requires some training and practise, just as the description of subspecies requires training in color and methods of measurement. One with a reasonably good musical ear may train himself to recognize pitches, to recognize instantly the difference between a tone and a half-tone, a third and a fifth. Dealing with such high pitched voices as most birds have, however, he cannot do it without practise. The sounds and voices of many of our commonest birds have never been adequately described. There is a big field here for active ornithological work. Nearly all observers probably know many facts about bird sounds that have never been put into print.

Roosevelt Wild Life Forest Experiment Station, Syracuse, New York, August 16, 1924.

SOME NEW RECORDS FOR NORTHEASTERN CALIFORNIA

By JOSEPH MAILLIARD

(Contribution from the California Academy of Sciences)

SO FAR as the study of geographical distribution of bird life was concerned, the results of our field work in northeastern California in the spring of 1923 were rather disappointing, as but little of interest in this regard was discovered. Observations carried on in Modoc County from May 8 to June 14, however, were indicative of more promising results, provided that a good locality from an observer's standpoint could be found, and it was decided to make this County the scene of spring operations in 1924.

In the case of birds, the most interesting distributional record we made in 1923 was the confirmation of the presence of the Ferruginous Rough-leg (*Archibuteo ferrugineus*) in Modoc County. The only previous mention of the occurrence of this species in northeastern California is that made by Mr. H. W. Henshaw in the Report of the Chief of Engineers for 1879, Part III, p. 2293, where, under the head of *A. ferrugineus* (Licht.), he says, "A hawk was seen in Northeastern California which I believed to be of this species."

On May 10, 1923, while we were encamped at the Deep Creek Forest Service Station in a cañon on the east side of the Warner Mountains, my assistant, Robert J. Woods, went up to the top of the range. On his return to camp, he reported having seen several large hawks which acted as if they were nesting in the vicinity. Two of these, he said, were different from the others, and from his description, it seemed as though they must be the Ferruginous Rough-leg. After the differences between this species and other hawks that he might find there were explained to him, he was sent back, on May 15, with orders to bring in a specimen of the Ferruginous Rough-leg if possible. But the nest of the pair of hawks, apparently of this species, was on a high cliff (inaccessible to one unaided), and a strong gale was blowing that day. Woods got a shot at one of the birds but failed to secure it; he returned, however, convinced that he was right in his identification of it as *Archibuteo ferrugineus*.

On June 11, this species was also noted at Jess Valley (Modoc County), where, at the west end of the valley in the Pit River cañon, a pair of the birds had a nest. This nest was in plain view in a pine tree on a hillside on the south side of the river. There was too much water in the river to allow us to cross it except at a long distance above the nest, but the birds came near enough to us to be easily identified, and this

identification was corroborated on June 15, when the pair circled over our heads just out of gunshot range, but sufficiently close to be intimately studied through field glasses, or even without such aid. While I was sorry not to secure a specimen, I was so positive of proper identification, as I had taken several in other localities, that I did not quite realize the importance in this instance of having the skin to clinch the record. Every effort *should* have been made to reach the nest, but it was hoped that there might be an opportunity to secure one of these birds without it being necessary to make the long detour to reach their nesting site. We left Jess Valley, however, without such an opportunity presenting itself.

The only other particularly interesting occurrence in the 1923 campaign in Modoc County was that of the Golden-crowned Sparrow (*Zonotrichia coronata*). On May 9 and 10, a few individuals of that species were seen in the brush on the south side of the Deep Creek Cañon, near Cedarville, at an elevation of from 5500 to 6000 feet. One of the birds was secured on May 9, but it was taken at very close range and was so badly shattered that it was not saved, as it seemed as if it would be easy to get others. The next day a couple were seen, but they were so wild that none was obtained.

I did not at that time appreciate the fact that apparently there was no authentic published record of the occurrence of the Golden-crowned Sparrow in spring east of the Sierras in northern California. In an article in THE CONDOR (XXIII, 1921, p. 136) A. van Rossem states that this species is "a common migrant along the eastern Sierras," and I had accepted this as including the *eastern slope* of the Sierras, else I would have saved the above-mentioned specimen in spite of its dilapidated condition. After returning from the Modoc County trip, I began to wonder what really was meant by the above-quoted statement. A letter of inquiry to Mr. van Rossem elicited the reply that he meant to say that these birds migrated along the *western slopes* of the eastern ranges, but not *east of* the Sierras. Hence, unless some note has escaped my attention, the Deep Creek bird is the first specimen of this species to be recorded as taken in spring in northeastern California. Happily, as later detailed, this spring record was verified in 1924, by the taking of a specimen only a few miles south of the place where these sparrows were seen in the previous spring. Reference has been made in Grinnell's *Distributional List of the Birds of California* to the presence in the Mailliard Collection of Golden-crowned Sparrows taken in the fall at Eagle Lake, Lassen County, California, this constituting the only autumn record for east of the Sierras in this part of the State.

In 1924, circumstances made it seem advisable for us to return to Modoc County, and, with the aid of the knowledge of that territory already gained, to work over the ground more thoroughly. From the previous year's experience, Eagleville, in Surprise Valley, about 18 miles south of Cedarville, appeared to be a good place in which to establish ourselves. I had not actually been at Eagleville in 1923, but had been near it, and it looked promising from a distance. Both Eagleville and Cedarville are on the west, and better watered, side of Surprise Valley, which extends from Fort Bidwell southward some 60 miles along the eastern base of the Warner Mountains. In the center of the valley lie Upper, Middle, and Lower Alkali lakes, separating the fertile, irrigated meadows on the western side from the sage-brush, sand, and lava-strewn desert on the eastern side. These lakes are shallow sheets of water in the winter and early spring, but mostly level expanses of alkali dust in summertime, and this year (1924) they were entirely dry except for a small laguna at the south end of Middle Lake. The valley is narrowest at Eagleville, and consequently the desert

on the Nevada (eastern) side was most easily reached from that place, especially as a very fair road led over a causeway just below the south end of Middle Lake, obviating the crossing of the dry sand of the lake beds which would have been necessary elsewhere.

On account of unforeseen delays the field party of 1924, consisting of Mr. Frank Tose, habitat group artist and chief taxidermist of the Academy, Mr. Jack Malloch, chauffeur and general assistant, and myself, did not reach Surprise Valley until the rather late date of May 20.

It had been my desire to intercept some of the northern migrants, especially the Golden-crowned Sparrow, for the purpose of establishing the record made the previous year. It seemed as though we were too late for that, but in this case, good fortune was with us, for Mr. Tose obtained a belated migrant of this species on May 24, and thus the record was nailed down and clinched.

At this date we were encamped in the cañon of Raider Creek, at a point about 1½ miles northwest of Eagleville. This spot not being easy of access and not especially favorable for our work, we obtained the use of an old cabin on the main road about half a mile from town, from which it was easy for us to radiate in various directions in pursuit of knowledge concerning the bird life of the vicinity.

The choice of Eagleville as an observation and collecting station proved to be a good one, and several surprises resulted from the selection. There was more bird life in this small, but quite old, settlement than in any other spot we visited in Modoc County. Most of the birds were of species common to a great part of the state, and it was rather hard at times to realize that we were in northeastern California at an altitude of nearly 5000 feet and not in the low foothills of the San Joaquin Valley, as the notes of such species as the Western Robin, Bullock Oriole, Western Meadowlark, Lazuli Bunting, and Western House Wren made a constant chorus during the early part of our stay. A pair of Valley Quail had a nest not far away, and the male bird delighted in repeating his monosyllabic springtime call at intervals throughout the day from the roof of our low, one-story cottage. This was a bit startling at times when his rather piercing call broke out suddenly within six feet of one's head, even if there *was* a thin roof between. A Western Meadowlark also took up his abode close to us and all day long kept repeating a refrain that sounded to me to be *"Oui!* It's a bea-*utí*-ful *d-a-ý!"*

An event of great interest occurred on May 27, when Mr. Tose returned from a morning tramp and reported that he had come across a colony of the Bobolink (*Dolichonyx oryzivorus*) in a meadow a mile or so away, and brought back two specimens as proof of his statement. In the hope of finding a nest, we visited this field on several occasions, but without success. The males, apparently about a dozen in number, were constantly carrying on their aërial evolutions in good style, filling the air with their cheerful, but rapidly uttered, jumble of notes. Females seemed to be scarce. Every time that a female arose from the grass she was pursued by from one to three males, which made it appear as if the sexes were very unequally represented in this small colony. When a female left the ground during our search for nests, one of our party would examine the place from which she rose, but no trace of nests was found.

It is true that the nests of this species are very hard to discover, as the female sneaks a long way through the grass before rising, if she rises at all when disturbed; and there may have been several nests in the field without our having found any. Again, although the three of us covered quite an area in our search, it is possible

that these birds may have nested in some other part of the extensive meadow rather than in that portion they were frequenting when we found them. A few males were noted elsewhere in this part of Surprise Valley, but no females.

On account of the apparent scarcity of females, only one was taken (on June 7) for the record. Evidently this individual was not nearly ready to lay, as examination showed that the ova were about the size of no. 6 shot, or nearly three millimeters in diameter. The skin of the abdomen was very soft, but did not show the absence of feather-covering usual in sitting birds.

While I would have liked to continue the search for nests of the Bobolink later in the season, the grass in the meadows grew so tall that the wrath of the land owner would have been poured on our heads had we done so, as this grass was to be cut for hay—a very scarce and valuable article in this season of unusual drought. Inquiry among the older residents of Eagleville brought out the fact that the presence of Bobolinks in Surprise Valley in the spring and summer had been a common occurrence for many years back.

The nesting of the Sandhill Crane (*Grus mexicana*) and the Long-billed Curlew (*Numenius americanus*) in this valley was another matter of ornithological interest. In the summertime, the only water in Middle Lake is to be found at the southern end, in a small laguna surrounded by a few acres of tules. Near these tules we ran across a pair of Sandhill Cranes on May 27. From the actions of these birds it seemed as though they must be nesting. A search of the most logical spot in the vicinity resulted in the discovery of the nest, but the contents consisted only of bits of egg-shells, and the lining membrane of one of the eggs. As the water had disappeared from this tule patch some time previously, the nest must have finally been totally unprotected from predatory animals, and my first impression was that it had been robbed just before incubation was completed, otherwise the lining membrane would have been pushed out of the nest by the young, or, having been retained inside the nest, would have been flattened out, which was not the case. However, the sight of a half-grown crane, walking with its parents in a nearby field one evening, cast a doubt upon the hypothesis of robbery, although the nest may have belonged to yet another pair of birds which had been seen not far away.

The young crane was seen only on this one occasion, in spite of later search for it. The parents had been anything but wild when first encountered with the young, but after that evening they were impossible to approach. There is every probability that the young one fell prey to one of the coyotes infesting the locality, an attractive foraging ground having been provided by the drying up of this nesting ground of various ducks and other water-loving fowl.

Another pair of cranes, with a young one, was reported to us as inhabiting a meadow some 12 miles off, at the south end of Surprise Valley; but when we went to look for them, we found the parents but no young. The parents proved to be extremely wary—just the reverse of what they had been when our informant had seen them with their young a few days previous to our visit. According to statements of old residents, several pairs of cranes have been breeding regularly in Surprise Valley for many years, as also have the Long-billed Curlew.

There were quite a few pairs of Long-billed Curlews in various meadows we visited, and at the south end of Lower Lake we saw a few Western Willets (*Catoptrophorus semipalmatus inornatus*). Both species had hatched out their young before we came across them, and so well hidden were the youngsters that we did not find any. The curlews and willets came flying at us *from somewhere* when we were

perhaps a half a mile away, and it was impossible to say where they kept their families. A ditch tender by the name of Reeder, who was among these birds a great deal of the time and was more or less interested in watching them, told us that he had never seen a young curlew, but that he had found a nest containing four eggs about three weeks before we met him, making the date of discovery somewhere between the 20th and 25th of May. The eggs had hatched by the time we reached this place.

In 1924, I was again unfortunate in not securing a specimen of the Ferruginous Rough-leg. None was positively identified in Surprise Valley, although, on one occasion, we passed a hawk that I am fairly certain was of this species, perched on a fence by the roadside close to Eagleville. On June 17, a visit was made to Jess Valley to see if the pair of the previous year had returned to their nest, but we found no sign of the birds. Either the nest had not been occupied this year, or the young had already left the vicinity. The only absolutely positive identification of the Ferruginous Rough-leg in northeastern California this season was made on our return trip, on June 20, when one of these birds arose from the deep gorge of the Pit River as we were rounding the point at the top of the grade from that river up to the Fall River mesa. This hawk soared over our car almost within gunshot range. We stopped and watched it in the hope that it would misjudge the distance. As it circled slowly above us, the distinguishing characters were plainly discernible even with the unaided eye, and good field glasses made assurance doubly sure.

Further details of the field work accomplished on this trip will appear in due course in the Proceedings of the California Academy of Sciences.

San Francisco, August 6, 1924.

A SURVEY OF THE SONG SPARROWS OF THE SANTA BARBARA ISLANDS

WITH TWO FIGURES

By A. J. VAN ROSSEM

THE PRESENT arrangement of the races of song sparrow (*Melospiza melodia*) which inhabit the Santa Barbara Islands (these being here considered as including Los Coronados Islands) is one which reveals several apparent inconsistencies when viewed from a distributional standpoint. Under the grouping until now in vogue, *clementae* occupies the northern and southern extremes, with *graminea* occupying two intermediate stations. In other words, *clementae* has been assigned to Los Coronados, San Clemente, Santa Rosa, and San Miguel islands, and *graminea* to Santa Barbara and Santa Cruz islands. No song sparrows are known to occur on San Nicolas and Santa Catalina islands. In the latter case this condition is difficult to account for. Santa Catalina would appear to offer a favorable habitat, and one much better suited to melospizan requirements than some of the other islands such as San Clemente and Santa Barbara where the birds are plentiful.

No survey of the song sparrows of the islands is comprehensive without consideration of those of the adjacent mainland, particularly those individuals which inhabit the littoral association of Ventura County. Birds from this area show a closer approach to the insular forms than do birds from elsewhere within the California range of *cooperi*; and one is tempted to suppose that the original island stocks (exclusive of *coronatorum*) were derived from here. These Ventura County birds are distinct from any island race in that they possess a darker and browner dorsal

coloration; the streaking on the back is broader and darker, the maxillary streaks are heavier, the individual spots on the breast are broader and less numerous, and the flanks are browner. Individual variants approach *clementae* and *graminea* in some particulars. Possibly the basis of the statement in the Second Edition of the A. O. U. Check-list (1895, p. 242) that *graminea* occurs on the neighboring mainland had its foundation in specimens similar to these. The following is a brief synopsis of the recognizable island races.

Melospiza melodia coronatorum Grinnell and Daggett. Los Coronados Islands Song Sparrow.

Melospiza coronatorum Grinnell and Daggett, Auk, vol. 20, 1903, p. 34.

Range.—Los Coronados Islands, Lower California, Mexico.[1]

Differential characters.—Brownest of the island races, and smallest in point of tarsi and feet. Bill much as in *graminea* and therefore smaller than in *clementae* and the mainland *cooperi*. Sixteen specimens examined.

Remarks.—This race was considered by the A. O. U. Committee (Auk, vol. 25, 1908, p. 395) as too close to *clementae* for recognition; but additional material shows it to be a good form. Its relationships would appear to be with *cooperi*, of the nearby mainland, rather than with *clementae*, for in color it is closer to the former. However, it cannot be considered an intermediate; for the bill, tarsi, and feet are smaller than either, and in the last two respects it is the smallest of all. It is to be noted that an insular environment has resulted in a reduction in size of bill, tarsi, and feet (compared with the mainland *cooperi*); also that there is no reduction in wing length nor lengthening of the tail, in this case—characters commonly supposed to occur in island races. *Coronatorum* is a common though not abundant resident of all four islands of Los Coronados group. The extraordinary abundance of mice (*Peromyscus*) will probably act as an effective check on any great increase in numbers.

52 53

Fig. 52. *Melospiza melodia clementae*, NATURAL SIZE; ♂ NO. C64, COLL. D. R. DICKEY; SAN CLEMENTE ISLAND, MARCH 27, 1915.

Fig. 53. *Melospiza melodia coronatorum*, NATURAL SIZE; ♂ NO. 34, COLL. L. M. HUEY; LOS CORONADOS ISLANDS, APRIL 1, 1913. COMPARE BILLS.

Melospiza melodia graminea Townsend. Santa Barbara Island Song Sparrow.

Melospiza fasciata graminea Townsend, Proc. U. S. Nat. Mus., vol. 13, 1890, p. 139.

Range.—Santa Barbara Island, California.

Differential characters.—Distinguished from the related races by short wing and

[1] No specimens have been examined from Todos Santos Islands. Song Sparrows are known to occur there and it is possible that they are referable to this race.

tail, and by grayish (least brownish) coloration. Differs also from *clementae* in smaller bill, tarsi and feet; from *cooperi* in smaller bill; and from *coronatorum* in larger tarsi and feet. Twenty-four specimens examined.

Remarks.—This race, in point of color, is the best marked of the three insular forms; for it attains the extreme of pallid grayish coloration with the minimum of brownish wash. It is, furthermore, the only one which can be distinguished by tail length and proportion of wing to tail. In *coronatorum, clementae* and *cooperi,* the tail is almost exactly equal to the wing. In *graminea,* the tail is decidedly shorter than the wing, not only as an average character but in every individual examined, with one exception. If degree of differentiation is taken as an indication, then *graminea* has been isolated for a longer period than either *clementae* or *coronatorum.*

Here, again, is a reversal in the matter of certain proportions usually considered applicable to island races; for the bill is smaller and more slender than in *cooperi,* and the tail is proportionately shorter. The tarsi and feet have followed the general reduction in body size only to a degree; they are actually slightly shorter than in mainland birds, but relatively a little longer. Because of the type of vegetation on Santa Barbara Island, song sparrows will probably be able to hold their own there against the feral cats which have become quite numerous on the island. Native predatory animals other than a mouse are not known to occur there.

Melospiza melodia clementae Townsend. San Clemente Song Sparrow.

Melospiza fasciata clementae Townsend, Proc. U. S. Nat. Mus., vol. 13, 1890, p. 139.

Range.—San Clemente, Santa Cruz, Santa Rosa, San Miguel, and probably Anacapa islands.

Differential characters.—Similar in coloration to *graminea,* but browner; slightly grayer than *coronatorum,* and decidedly grayer than *cooperi.* Breast spotting more diffused and narrower than in *cooperi,* and flanks grayer. (This latter character is in varying degree common to all three island forms.) As to size, *clementae* is in all dimensions larger than *cooperi, graminea* and *coronatorum,* except that the bill is approximately equal to *cooperi.* Forty-seven specimens examined.

TABLE OF MEASUREMENTS*

Wing			Tail			Tarsus			Mid. Toe minus Claw		
Minimum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum	Average
Melospiza melodia cooperi, 24 ♂ ♂ from coast of Ventura County											
57.5	65.0	61.5	57.0	65.5	61.5	19.6	21.8	20.9	14.0	16.4	15.5
Melospiza melodia coronatorum, 7 ♂ ♂ from Los Coronados Islands											
60.5	64.5	62.3	60.0	66.0	61.6	18.1	20.4	19.1	13.2	15.7	14.7
Melospiza melodia clementae, 13 ♂ ♂ from Santa Cruz, Santa Rosa and San Miguel Islands											
60.5	65.5	63.1	60.0	68.5	63.0	20.7	22.5	21.5	14.9	16.3	15.4
Melospiza melodia clementae, 20 ♂ ♂ from San Clemente Island											
61.0	65.5	63.2	59.0	67.5	63.2	20.1	22.9	21.6	15.2	17.3	16.1
Melospiza melodia graminea, 18 ♂ ♂ from Santa Barbara Island											
57.0	62.5	60.0	53.0	61.0	57.0	19.3	21.5	20.8	14.6	16.1	15.3

Remarks.—The name *clementae* would appear to be the one best applicable to birds inhabiting the northern group of islands; for in the aggregate of characters they fall nearest to those from San Clemente. They are, however, grayer, and in color occasional individuals approach *graminea* very closely. The individual islands

* Measurements of the females parallel those of the males in all proportions. They average about 5 per cent smaller.

considered, San Miguel specimens are the grayest and those from Santa Cruz the brownest. *In other words, those from Santa Cruz most closely resemble the Ventura* County coastal birds. In matter of size, they are practically as large as *clementae,* except for the middle toe, and, as before stated, are in general decidedly closer to that form. Were it not for the fact that they are larger than either, they might well be classed as intermediates between *graminea* and *cooperi.*

Whether or not the northern and southern "colonies" of *clementae* are actually related as closely as the general resemblance indicates is a question. At any rate the characters exhibited make the one name applicable to both.

Summary.—Three races of song sparrows inhabit the Santa Barbara and Los Coronados islands. *Melospiza melodia coronatorum* is confined to the four small islands of Los Coronados group. *Melospiza melodia graminea* is confined to Santa Barbara Island. *Melospiza melodia clementae* is found on San Clemente, Santa Cruz, Santa Rosa, San Miguel, and probably Anacapa islands. The colonies inhabiting the last four named islands may or may not be as closely related to the San Clemente "colony" as their resemblances indicate.

Clementae and *graminea* were not improbably derived from the *cooperi* stock now inhabiting the littoral association of Ventura County. *Coronatorum* probably is most closely related to *cooperi* of that portion of the mainland nearest Los Coronados Islands.

Pasadena, California, September 26, 1924.

VARIABILITY IN *BUBO VIRGINIANUS* FROM RANCHO LA BREA

WITH FIVE GRAPHS

By RACHEL A. HUSBAND

(Contribution from the Los Angeles Museum of History, Science and Art)

BUBO VIRGINIANUS has already been recorded from Rancho La Brea by Dr. L. H. Miller in his paper "The Owl Remains from Rancho La Brea" (Univ. Calif. Publ. Bull. Geol., vol. 9, 1916, pp. 97-104). Since the appearance of this publication, however, more material has become available for study, and further research made possible. This work has been carried on at the Los Angeles Museum of History, Science, and Art, where the assembled material included the large collection of fossil bones from Rancho La Brea, several modern specimens belonging to the museum, others from the Miller collection, and a number of skeletons and skins kindly loaned by the Smithsonian Institution.

The fossil specimens were taken from a number of excavations in the Rancho La Brea formation, the greatest number coming from Pit 16. Of the three limb elements selected for study, the tarsi were the most numerous, being represented by 201 specimens, the tibiae following with 24, and the humeri with 15 specimens. This more frequent preservation of the tarsus was, perhaps, partially due to the fact that it is a small and dense bone with practically no flesh, making it unattractive to Carnivora. The tibiae and the humeri, on the other hand, suggest by their broken state of preservation that they have more frequently been subject to the depredations of the flesh-eaters.

The statement by Dr. Miller that "the fossil species is distinguished from the Recent by a character not held in common, i. e., great variability in a fixed locality,"

(*ibidem*, p. 100) has been further verified by these studies, as will be shown below. *Two possible explanations of this variability have been advanced. Dr. Miller has* suggested a common stock from which developed the widely diversified subspecies of the present period. The other theory, suggested by Mr. L. E. Wyman of the Los Angeles Museum, deals with the effect of climatic change on the evolution of the bird. The asphalt pools were probably open for thousands of years, and there seems to be evidence that during that time the climate slowly and gradually changed from moist,

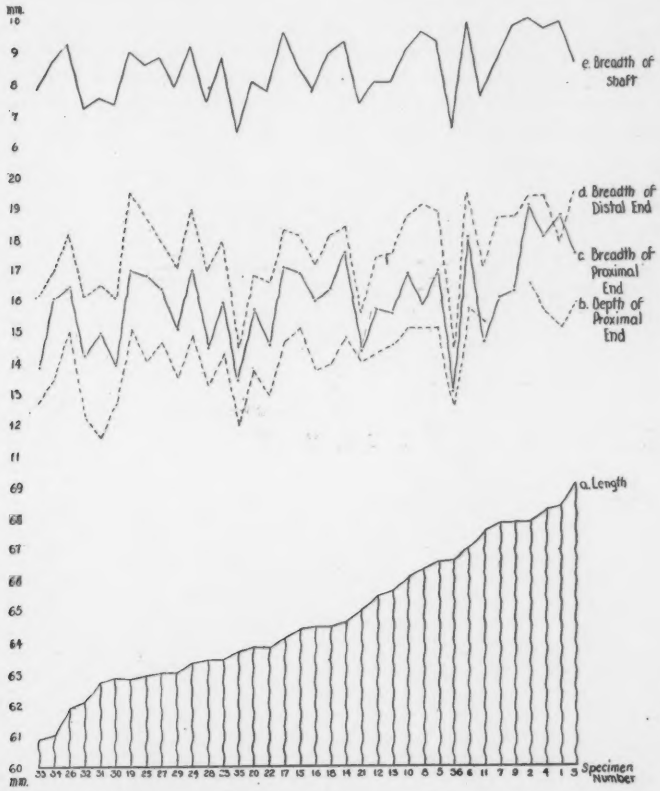

Fig. 54. *Bubo virginianus.* TARSOMETATARSUS. GRAPH SHOWING COMPARATIVE MEASUREMENTS OF A GROUP OF 36 SPECIMENS FROM PIT 16. × 5.

warm-temperate to semi-arid conditions. At the present time, the *Bubo* which occupies the moist northern areas is of a greater size than that of the dry southern regions. The change towards aridity may have had one of two effects: a direct influence on the evolution of the bird, resulting in the dwarfing of a large species; or the migration of the larger species, perhaps first to the mountains, then following the receding moist climate towards the north.

The purpose of this paper is to add, to the information already published, the results of this research, and to draw certain conclusions therefrom. The writer desires to express her thanks for the loan of material to Dr. L. H. Miller, and to the authorities of the Smithsonian Institution. She is also greatly indebted to Dr. Miller, at whose instance this paper was undertaken, for his critical oversight and many helpful suggestions; and to Dr. Wm. A. Bryan and Mr. L. E. Wyman for their aid and encouragement.

TARSOMETATARSUS

The series of tarsi is beautifully preserved, and is large enough to cover all probable variations, due to age, sex, or individuality. Variation is great, the range in length including the smallest, and exceeding the largest, Recent tarsi studied. The one locality covers the present size variation of *Bubo* in the whole of North America. Careful study was made and measurements taken of the series as a whole, and of a picked series of thirty-six tarsi from Pit 16.

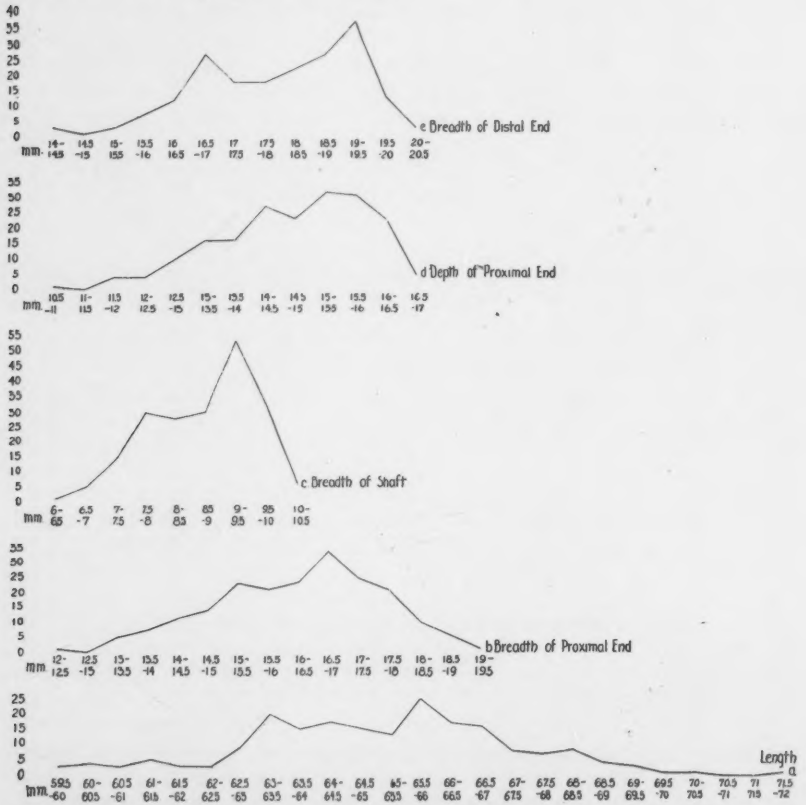

Fig. 55. *Bubo virginianus.* TARSOMETATARSUS. FREQUENCY CURVES OF THE FIVE MEASUREMENTS ON APPROXIMATELY 201 SPECIMENS. THE HORIZONTAL ROWS OF FIGURES REPRESENT THE DIMENSIONS IN MILLIMETERS; WHILE THE VERTICAL ROWS REPRESENT THE ACTUAL NUMBER OF SPECIMENS OF THE VARIOUS SIZES.

The comparative measurements of the latter group are shown in the accompanying graph, fig. 54. The lengths, being arranged in order of increase in size, make this curve a fairly regular one. The other four curves do not follow the length curve, but in general follow one another. This is to be expected, from the fact that length of bone is a character which is apparently determined early in the life of the bird; while stoutness of shaft and diameter of ends vary with age and, perhaps, with sex.

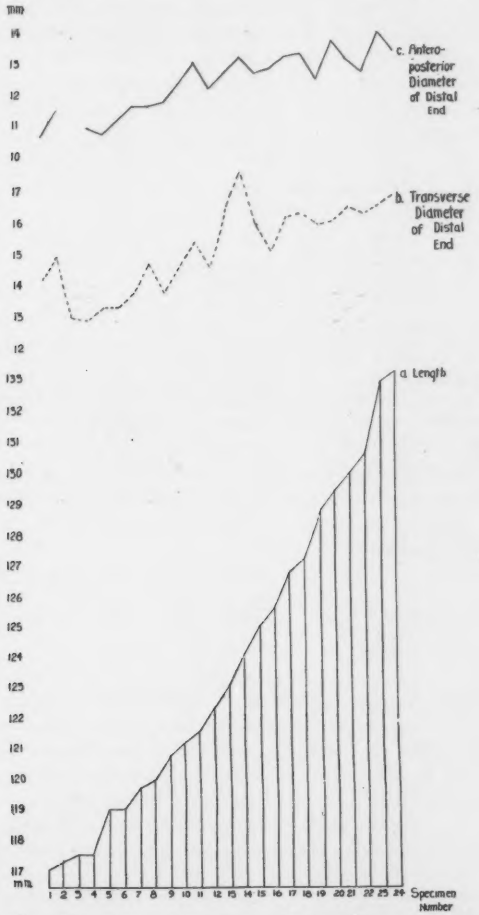

Fig. 56. *Bubo virginianus.* TIBIOTARSUS. GRAPH SHOWING COMPARATIVE MEASUREMENTS OF 24 FOSSIL SPECIMENS. × 5.

Frequency curves were plotted for the five measurements in the series of 201 specimens (see fig. 55). These are interesting in their parallelism. Each curve has its individual characteristics; but each displays two high points, the first being lower than the last. These two apices probably represent the two sexes, the female attaining the greater size.

The following table shows the average length, range of variation, and percentage of variation, prepared from the measurements of the four groups, Recent and fossil, which were studied.

	Fossil 201 specimens	Recent 15 specimens
Average length tarsi	64.96 mm.	62.153 mm.
Range of variation	12.4 mm.	4.466 mm.
Percentage of variation	.1908	.07123

TIBIOTARSUS

As stated above, the series of tibiae is not as extensive as that of tarsi, numbering only 24 perfect specimens. In length there is a considerable variation; but the frequency curve does not show the sex difference as plainly as does the corresponding curve for the tarsi. This character would probably be apparent if the number of specimens were greater.

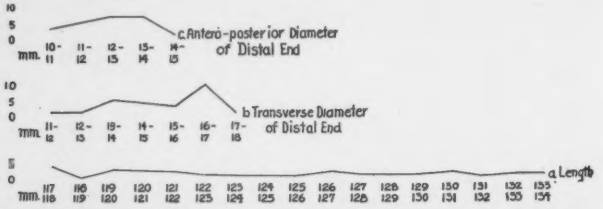

Fig. 57. *Bubo virginianus.* TIBIOTARSUS. FREQUENCY CURVES OF THE THREE MEASUREMENTS ON 24 SPECIMENS. THE HORIZONTAL ROWS OF FIGURES REPRESENT THE DIMENSIONS IN MILLIMETERS; WHILE THE VERTICAL ROWS REPRESENT THE ACTUAL NUMBER OF SPECIMENS OF THE VARIOUS SIZES.

Three measurements of this element were taken, the curves being plotted in the same manner as for the tarsus (see figs. 56, 57). The table of variation, also prepared as for the tarsus, shows a smaller percentage of variation, both for the Recent and fossil groups, than is found for the tarsus.

	Fossil 24 specimens	Recent 21 specimens
Average length tibiae	123.808 mm.	120.326 mm.
Range of variation	16.1 mm.	8.266 mm.
Percentage of variation	.13	.06853

HUMERUS

The series of humeri is the smallest, being represented by only fifteen specimens. In spite of this fact, the length variation is much greater than in the other two elements. This is shown by a comparison of the three tables. The longest fossil specimen exceeds the longest Recent specimen by more than three millimeters, while the smallest is over two millimeters shorter than any Recent one available. The accompanying graph (fig. 58) shows the comparative measurements. The frequency curve was not plotted, being indecisive because the number of specimens is not sufficiently large.

	Fossil 15 specimens	Recent 17 specimens
Average length humeri	129.84 mm.	128.4 mm.
Range of variation	25.4 mm.	12.76 mm.
Percentage of variation	.2033	.0991

COMPARISONS

An interesting comparative study may be made of the length variation in the three elements. The tarsi, with the greatest number of specimens, show the smallest actual variation, only 12.4 mm.; the tibiae have a range of 16.1 mm.; while the

humeri, represented by the smallest number of specimens, have, as stated above, the greatest range, amounting to 25.4 mm. On comparing the percentage of variation between the fossil and Recent groups of a single element, however, it is seen that the variation of the fossil tarsi is approximately three times that of the Recent, while in the case of the tibiae and humeri, the variation is only about twice that of the Recent groups. It would appear, then, that length of leg, particularly of the tarsal segment, is more easily, or at least more frequently, modified than length of wing.

CONCLUSIONS

This detailed survey of a comprehensive group of Rancho La Brea Horned Owls verifies Dr. Miller's original conclusions, as stated in the introduction. The measurements taken, and the graphs and tables which were prepared from them, show clearly that the species at this locality exhibits a greater size variation than the present species displays throughout the whole of its North American range. A possible conclusion is that the fossil form was not only a common stock from which came the present more localized geographic races, but was also generalized and extremely variable. An explanation of this unusual variability, based on our knowledge of climatic effect on the Recent *Bubo,* lies in the change of temperature and moisture which apparently took place at this locality during the long Pleistocene period. If, as is indicated, this change of climate affected the size of the original Rancho La Brea *Bubo,* the large and variable accumulation of their bones, in this formation, must be representative of different stages in the size evolution of the bird.

The genus *Bubo* occurs as early as Eocene and Miocene in both Europe and America; while the species *B. virginianus* is found in the Pleistocene Fossil Lake beds of Oregon. These facts, however, showing the wide distribution of the genus throughout the Tertiary period, do not indicate that this locality was a center of dispersal for the group, as the variability of the fossil form might suggest.

Los Angeles, California, August 21, 1924.

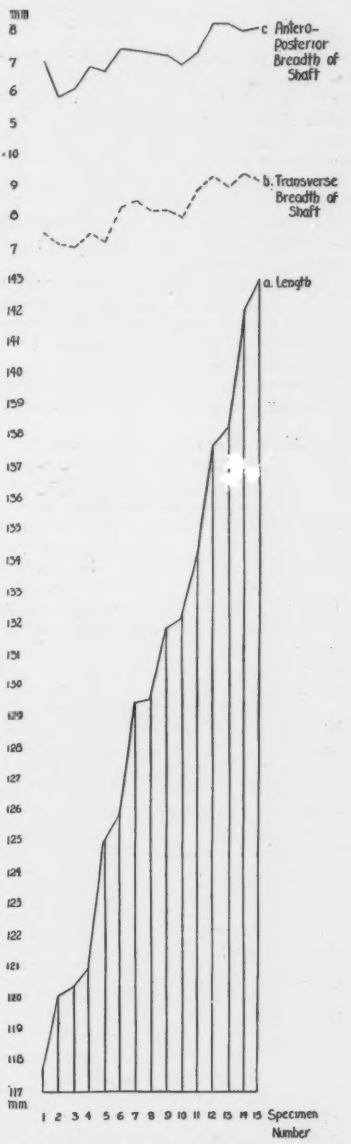

Fig. 58. *Bubo virginianus.* HUMERUS. GRAPH SHOWING COMPARATIVE MEASUREMENTS OF 15 FOSSIL SPECIMENS. × 5.

FROM FIELD AND STUDY

Coot Caught by Turtle.—On May 3, 1924, my brother, Carl S. Leopold, and myself were fishing in Crystal Lake on the Illinois shore opposite Burlington, Iowa. We noticed a flock of a dozen American Coots (*Fulica americana*) on a marshy point, one of which continuously flapped its wings. We thought at first the flapping was some sort of courtship antic, but it continued so steadily that we concluded the bird must be caught in a muskrat trap. The flock dispersed as we drew near. It was evident that they had gathered around the flapping bird as a crowd gathers around a street accident. I lifted the bird by one wing and pulled up the head of a huge hardshell turtle, which had gripped about an inch of the middle toe of one foot. We dispatched the turtle with a .22 bullet through its head. It did not relax its grip until shot. We estimated its weight at 15 pounds.

The remarkable thing was that the coot's foot was absolutely uninjured, in spite of its large size and rather fragile construction. I know from experience that this size and species of turtle can bite a large sunfish in two, or almost sever the fabric of a rubber boot. The turtle was evidently holding on gently, awaiting the exhaustion of the bird. It could have drowned the coot by backing out into deeper water, but made no move to do so during the ten minutes when we were watching the flapping process.—ALDO LEOPOLD, *Burlington, Iowa, May 2, 1924.*

More Birds that Grasp Objects with the Feet.—Since the issue of a query in the CONDOR for May, 1924, page 112, as to what birds beside raptores hold objects with the feet, the following instances have come to my notice.

A Green-backed Goldfinch (*Astragalinus psaltria hesperophilus*) while seeding a batchelor button head, bent the slight stem to a horizontal position. When through with it, the bird reached deliberately out with one foot and grasped a nearby spray and pulled it under his feet on the original stem and ate from the new supply of seeds.

Mr. and Mrs. Charles Francis Saunders tell me that Arizona Hooded Orioles (*Icterus cucullatus nelsoni*) in their yard are fond of the flowers of the flowering maple (so-called) and probe the pendant bells by reaching down with the foot and pulling the face of the flower up. Another friend says these orioles frequent the flowering maple when in bloom. During mulberry season I observed these orioles several times holding the fruit with a foot while eating berries that had been plucked from the stem.

A butcher-bird (*Lanius ludovicianus gambeli*) observed on May 2 placed a grasshopper in one foot and held it close to the twig upon which it was perching. As described by Mr. J. Eugene Law at the July meeting of the Southern Division of the Cooper Ornithological Club when reporting a similar observation, the tarsus was rested across the twig in rather an ungainly position. The bird I watched tried in vain to get some nourishment from the carcass held so insecurely, though many perches and positions were tried. The hopper was held close to the twig. In flight, the bill carried it. Who has seen the California Shrike eat "butchered" food, that is, after being hung up?

An immature male Anna Hummingbird (*Calypte anna*) feeding in the flowers of the bird-of-paradise shrub made a peculiar batting sound that attracted me fifty feet. It proved to be the wings hitting the very long protruding stamens of the flowers. The bird was annoyed but would not desist and finally took to grasping the offending filaments with extended feet. Flower after flower was thus worked; but after the first few experiences the bird settled full weight upon the stamens, carrying them down so far his body swung even past the vertical, the belly facing up under the flower. The wings went "dead" on one occasion, but usually they vibrated slightly while held high above, after the fashion of swallows gathering mud. The beginning of this clutching with the feet I consider an effort to *grasp* the interfering stamens and hold them down—because of the extension of the feet in the unusual forward position displayed at the first. Later, the bird merely settled upon them in a perching attitude. From my study window this clinging to a flower or a flower stalk is seen nearly every day. The vigor and strength shown by these "weak" feet, that grasp one canna stalk in particular in a sidewise position and hold the body out in better poise than most finches in similar attitudes, makes me believe the texts are wrong in describing them as weak.

A Mrs. Rodewald, living in Altadena, California, has been feeding hummingbirds syrup and has gained quite a following. When perched on the little stick held out for them, I noticed the vigorous manner in which the birds sidled down to the end of the

stick nearest the syrup pot. The hummers have been coming several years and Mrs. Rodewald thinks two of this year's pensioners are from two years back. At least one of them has the individual habit of perching upon the lip of the syrup cup (all of them know where it is kept and go to it and hover). Those that perch on the rim of the cup often sidle half way around at one move, to get a better position. To see this movement is to be impressed with the freedom and ease with which such foot work is accomplished. —ROLAND CASE ROSS, *Pasadena, California, September 22, 1924.*

The Red-eyed Vireo as a Bird of Oregon.—The first reference to the capture of the Red-eyed Vireo (*Vireosylva olivacea*) in the literature on Oregon birds that I can find was in Shelton's Distributional List of the Land Birds of West Central Oregon, published by the University of Oregon (University of Oregon Bulletin, New Series, Jan., 1917, vol. XIV, no. 4, p. 37), in which an adult male was reported taken on the Middle Fork of the Willamette River near Oakridge on the west slope of the Cascade Mountains. The species was next brought to my attention during the summer of 1923, when Mr. William Sherwood, of Salem, Oregon, collected a number of them on the Imnaha River near Imnaha Post Office in Wallowa County near the northeast corner of the state. One of these specimens, an adult male, was taken on June 14, 1923.

On June 18, 1924, at Union, Union County, Oregon, my attention was drawn to a vireo song which, upon investigation, proved to be from a Red-eyed Vireo in a near-by cottonwood tree. This bird was seen at a distance of ten or twelve feet and positively identified. On July 6, 1924, in the company of I. N. Gabrielson, of Portland, I found a nest of this species in a wild crabapple tree on the banks of the Columbia River about twelve miles east of Portland. The nest was typical of the species and contained three fresh eggs. On this day, Gabrielson and I saw no less than seven Red-eyed Vireos and heard several more in about two hundred acres of well wooded river-bottom land. Two adult males were collected. On July 13, 1924, Mr. Gabrielson again visited this locality and took an additional adult male and heard several more.

In view of the above, it appears that the Red-eyed Vireo has recently become a fairly common breeding bird of Oregon. The species probably invaded the state from the north, as it has long been a common breeding species in the eastern part of the state of Washington.—STANLEY G. JEWETT, *Portland, Oregon, July 14, 1924.*

The Anna Hummingbird Takes a Shower Bath.—In connection with a former note on the bathing of hummingbirds (CONDOR, XXIV, 1922, p. 63) the following incident may be worthy of record.

On August 17, 1924, while watering my lawn at Alameda, California, I placed the sprinkler in position and had just turned on the water when an adult male Anna Hummingbird (*Calypte anna*) flew into and poised in the dense spray. After glancing about for a moment he gradually assumed a vertical position and spreading his tail, then slowly settled to the ground, meanwhile drawing the tail back until it nearly reached the horizontal plane, when he actually "sat" on the grass, the body erect and the tail spread out fanwise behind him. The wings continued to vibrate while in this position, but the strokes were much less frequent than when flying, being just sufficient to maintain a vertical balance. In a few seconds he began increasing the wing strokes and slowly ascended about a foot above the ground where he poised a moment and then repeated the entire performance several times, after which he flew to a wire overhead.

Thinking he might be "contemplating" another plunge I summoned an audience of several persons who arrived just in time to witness the rare spectacle of a hummingbird "sitting" on the ground in a rain storm! When the "point of saturation" was reached he darted away as suddenly as he had come.—F. N. BASSETT, *Alameda, California, August 22, 1924.*

Western Tanagers in Berkeley in Midsummer.—On July 28, 1924, a male Western Tanager (*Piranga ludoviciana*) was seen in the top branches of a red plum tree located east of the University of California Infirmary and south of Stadium Drive. It flew from this tree into a locust tree about twenty-five feet away. It was not seen again that day.

On July 30, a male Western Tanager was seen in a plum tree neighboring the red plum tree. There was little if any fruit left on these trees, and neither time the bird

was seen did it show signs of feeding. An hour later it was seen in the same vicinity perched half way up in a small redwood tree. It flew out of the redwood tree towards the fruit trees.

On August 8, a male Tanager was seen again in the redwood tree. On August 9, three birds were seen at 6:55 A. M. This time two males and a female or immature bird were flying about. At 8:30 A. M. on the same day, observations were made for an hour. Six Tanagers were seen—three males, two juvenile birds, and one female. Two of the males were very pronouncedly and clearly marked; the third had only a little red on the head and the yellow part back of the red and on the under parts, instead of being clear yellow, looked, particularly on the breast, gray tipped or dirty. This latter bird or a similar one was seen on August 16, also a female or juvenile bird—identification of the duller bird was not definite.

The birds were observed to be feeding on yellow plums; also on bees flying through the air, possibly some other insects, but I recognized two as bees. There are a good many bees in this vicinity just now, due to a red eucalyptus which is blooming, hollyhocks, and golden-rod. It was also reported that the Tanagers were feeding on some Rowan berries about seventy-five or one hundred feet away. I did not see them, however.—MILDRED KELLOGG, *Berkeley, California, August 18, 1924.*

Western Bluebird Nesting in Berkeley.—On May 8, 1924, while looking for nests in the pasture to the south of the University's upper dairy barn, I saw a pair of Western Bluebirds (*Sialia mexicana occidentalis*). The female was soon observed to enter a hole in an oak tree, and this upon investigation was found to contain young which were only three or four days old. The entrance to the nest was ten feet above the ground and was about two inches in diameter. The cavity was about ten inches deep and lined with grass and fibers.

On May 30 the young were banded by the writer and given Biological Survey Numbers 124331,-32,-33,-34. On June 8 the nest was again visited and the young were found to be fully feathered and almost ready to leave. This was the last day the young were found in the nest.

This is the first recorded instance of the Western Bluebird nesting in Alameda County since 1886. In Belding's "Land Birds of the Pacific District," page 262, T. S. Palmer, reporting from Berkeley, says, "I know of only one instance of its breeding here. Last seen, March 18, 1886."

The only other record is in 1876 and is found in "The American Naturalist," volume 10, page 90. This is by J. G. Cooper in an article entitled, "California Garden Birds." He says, "A pair of Western Bluebirds, Sialia Mexicana, had raised a brood of young under the roof of the adjoining house, and all of them frequented the garden much after May 4th. In the garden at Haywood [= Hayward] 18 miles southeast of San Francisco."—ERNEST D. CLABAUGH, *Berkeley, California, August 18, 1924.*

The Dickcissel and Yellow-billed Cuckoo in Montana.—On June 28, 1921, I collected a male Dickcissel (*Spiza americana*) a short distance east of Miles City, Montana. My attention was first attracted to the bird on June 26 by its call which was new to me. July 4 I saw ten singing males and two females of this species and on July 10, twelve males, and found a nest containing four eggs. On my next visit, the 17th, two of the eggs were hatched, the other two eggs being addled. I also found another nest on this date with one egg; visiting this nest again on the 24th, I collected a set of four eggs which are now in the collection of the University of Montana. Other specimens of the Dickcissel collected were two on July 4 and one on July 10, all males. The birds were found frequenting irrigated lands on the O. C. Haynes and adjoining ranches; none was observed except on irrigated lands. Young and females were seen August 7, but the males had apparently ceased singing and were not again found about their usual haunts.

Some of the favorite resorts of the male Dickcissels while singing were in the cottonwood trees and weedy thickets along the fences skirting alfalfa fields; but birds of both sexes were found to be more plentiful in a cultivated orchard of wild plums, of about two or three acres, which was over-run with a tall, rank growth of sweet clover. The two nests were in this orchard and were placed in thickly leaved wild plum bushes about two to three feet from the ground. On July 17, I found the sweet clover

had been cut from between the rows and removed, after which date the orchard was abandoned except by two pairs of the birds. Previous to this cutting five or six pairs apparently nested in or near this small orchard. The next summer, on June 16, 1922, the first bird was observed, singing, in this orchard. The Dickcissel is not recorded in Saunders' Birds of Montana; evidently the present one is a new record for the state.

On July 10, 1921, I collected a male Yellow-billed Cuckoo (*Coccyzus americanus americanus*) about two miles south of Miles City, Montana, in a brushy patch of small cottonwoods near the bank of Tongue River. This appears to be the first record of this species for Montana. Mr. Aretas A. Saunders mentions the finding of an egg, apparently *Coccyzus americanus occidentalis*, at Flathead Lake, west of the Rocky Mountains, on July 3, 1900, by Mr. P. M. Silloway (Birds of Montana, Hypothetical List, p. 174). From measurements taken before skinning, I believe my specimen to be *americanus;* length, 276 millimeters; wing, 136; culmen, 24.

On February 27, 1921, I collected a male Rocky Mountain Creeper (*Certhia familiaris montana*) in a cottonwood grove near the Yellowstone River, Miles City, Montana. There seems to be no previous record for Custer County and none in eastern Montana in the prairie region since the specimen in June, 1860, between Forts Union and Benton, as recorded by Cooper (see Saunders, Birds of Montana, p. 158).

The Western Robin (*Planesticus migratorius propinquus*) occasionally winters in Custer County. On January 30, 1921, I saw two birds of this species in a cedar gulch on Sunday Creek a few miles north of Miles City; and on November 11, 1920, I observed one eating wild-rose hips in a sheltered piece of woods at Fort Keogh, Montana, on a cold, windy day after a snow-storm.—CHAS. F. HEDGES, *Los Angeles, California, August 3, 1924.*

The Gambel Quail in San Diego.—An adult female Gambel Quail (*Lophortyx gambeli*) was trapped in Balboa Park, San Diego, by Mr. F. F. Gander of the San Diego Zoological Society on September 18, 1924. The identification was made by Mr. Clinton G. Abbott of the Natural History Museum and myself, with the living bird in hand. Every chance of the bird having escaped into the park has been checked as far as possible, and it seems established that she must have wandered in from the desert. Mr. Falconer and I are planning some experiments which will be interesting if we have any luck, as we have also captured her mate, a Valley Quail, presumably also her mate of last year. Mr. Gander tried last season to trap her, but without success.—GRIFFING BANCROFT, *San Diego, California, September 23, 1924.*

Nuptial Flight of the Black-chinned Hummingbird.—In the May, 1920, issue of the CONDOR, Mr. Richard Hunt describes very explicitly the nuptial flight of the Anna Hummingbird, giving a diagram of its flight and as accurate a translation in words of its song as is humanly possible. It happened that the writer, at an early hour on June 25, 1924, was hunting in a small patch of river-bottom woods near San Diego and observed a male Black-chinned Hummingbird (*Archilochus alexandri*) performing the nuptial flight. The female was perched on a dead, horizontal limb about five feet from the ground and the male took flight from a position approximately twenty feet above her on the twig of a cottonwood, against the trunk of which I was quietly resting. With a bold sweep and a whizzing noise made by the flight, which resembled that of the Costa Hummer except that the tone was not so intense, he passed very close to her and headed up to a point about fifteen feet above. There, while the upward motion died until a complete stop was reached, he seemed to pat his wings together underneath him, causing a sound much like that of a bathing bird flopping its wings in the water after they have become thoroughly saturated. After a second downward swing, with the whizzing noise, he rose to another point about fifteen feet up, where again the wing flopping performance was repeated. This U-shaped figure was repeated five different times, and, at each stop at the apex, the flopping of wings was indulged in, after which the bird again sought his perch on the cottonwood above his mate. I was close enough almost to hear his wing beats as he sped to and fro, and I watched the pair for three minutes, when they both flew off of their own will, without being disturbed. At no time during the minute and a half duration of the nuptial flight was there any vocal demonstration, though both birds were rather vociferous when perched.—LAURENCE M. HUEY, *Natural History Museum, Balboa Park, San Diego, California, August 4, 1924.*

The Pipit Nesting in Oregon.—On July 21, 1924, while tracking a Red Fox along the shore of a small, un-named lake at the base of Pete's Point, Wallowa National Forest, Oregon, I had the good fortune to flush a Pipit (*Anthus rubescens*) from her nest and four eggs. The alpine meadow about the lake is at about 8500 feet altitude, covered with snow about nine months of the year, but bright with heather and a carpet of green grasses and flowers during July. The flat is well strewn with boulders and small rocks loosened from the peaks above by the annual freezing and thawing process.

By a lucky chance, nature had placed three of these stones in such a way as to form a complete shelter, two medium-sized ones about six inches in diameter, with a flatter rock about a foot square for a roof. Under this convenient shelter, the Pipit had hollowed out a slight depression, lined it well with dry grass stems, practically

Fig. 59. TYPE OF COUNTRY AT 8500 FEET ALTITUDE IN WALLOWA NATIONAL FOREST, OREGON, FREQUENTED BY PIPITS. Photo taken July 21, 1924.

filling the floor of the opening between the rocks, and had deposited her set of four eggs. In the CONDOR (XXVI, 1924, p. 78), I recorded the presence of Pipits in this general locality during the month of July, but not until this nest was found did we have any authentic records of this bird nesting in Oregon. (See figs. 59, 60.)

On July 22, 1924, I saw a nearly full-grown young Pipit within a short distance of the above-described nest. From this, it would appear that the species raised two broods in this locality, unless the pair found with the four eggs on July 21 had had their first nest destroyed by some marauder.—STANLEY G. JEWETT, *Portland, Oregon, August 11, 1924.*

Two Oregon Water Bird Records of Interest.—During the past spring I have collected two water birds which seem to be worthy of record.

Querquedula discors. Blue-winged Teal. On April 19, 1924, while driving along a marsh south of Klamath Falls, Oregon, I noted a male Blue-winged Teal in bright spring plumage sunning himself at the edge of the water. This bird was collected. There seems to be no published record of this species for the Klamath district, though it has several times been reported by members of the Biological Survey.

Lobipes lobatus. Northern Phalarope. A female Northern Phalarope in high plumage was noted swimming about a roadside pool near Redmond, Oregon, on June 12, 1924. We stopped and watched this bird for some time before collecting it. It was evidently a non-breeding bird, as the ovaries showed no signs whatever of development.—IRA N. GABRIELSON, *Portland, Oregon, September 22, 1924.*

Fig. 60. NEST AND EGGS OF AMERICAN PIPIT FOUND JULY 21, 1924, IN THE WALLOWA NATIONAL FOREST, OREGON, BY STANLEY G. JEWETT.

WITH THE BIRD BANDERS

Under the Direction of J. Eugene Law, Altadena, California

Zonotrichia on Vancouver Island.—Bearing date September 24, 1924, the following letter is of interest:

"I notice in the September, 1924, CONDOR that you and other banders are lining up to intercept the retreat of the Zonotrichia from British Columbia.

"It might interest you to hear that *Z. l. gambeli* are rather rare and travel as a rule in company with *Z. coronata* when crossing my station. *Z. l. nuttalli* breed on the Island and move through in small groups, family parties, no doubt, on their way to some central 'jumping off' site. *Z. coronata,* however, move in two columns and as a rule in two columns only, both in spring and autumn. These two columns in autumn are . . . made up of both young and old, and from their manner of repeating I gather that the different families stick pretty close together, for although the flock may consist of some 60 to 80 birds, certain birds banded at the same time will often repeat together more or less continually. That I have had chances of observing this might be granted when I say that I have just banded 49 of this species and have had

69 repeats from this same flock in the last few days. They are never as common in spring as in autumn. So much is this difference in numbers that I take it their route is not the same at both seasons.

"Taking the few that I banded on their way north last spring, and the chance that I may be able to band others from the shortly-to-be-expected second column, I hope that at least a few of them may deliver my compliments to you and other banders in the south."—G. D. SPROT, *Cobble Hill, Vancouver Island, British Columbia.*

Banding a Means, Not an End.—Banders should not overlook their opportunity to correlate the work of their traps with the habits and migrations of the birds they are handling. Note book entries *made at the time* of such observations will prove an unending pleasure to the observer and will preserve for his use many facts which he may want to compare with the observations of others or with later observations of his own, or to use for publication. Details, the very things one wants later, soon blur in memory, and can not then be used as facts. Careful data of weather conditions prior to the appearance or disappearance of any species is needed. Local food conditions, types of cover, topography, all bear on the problems we are studying and enrich any notes which are offered to the public.

Clover Leaf Trap.—A very excellent trap recently devised is the "clover leaf" described in The Auk for July, 1924, p. 461. Dr. Clifford H. Wood, of Glendora, California, worked out the same plan independently in the early summer and used it successfully for Black-headed Grosbeaks. He simply took a strip of ¾-inch mesh chicken wire, 8 inches wide and 12 feet long, bent it into three-leaf clover form, attached the ends, and topped the "leaves" with ¼-inch hardware cloth. At each indentation a small funnel was made by cutting half way up and pushing the ends inward enough to make an entrance. One needs a door in one leaf, and a gathering cage. The simplicity of construction of this trap is apparent at once.

Symposiums.—1. Returns. In the coming January issue I should like to publish a complete list to November 1, 1924, of all "returns" to stations within the Western Province. Will each bander please forward to me at once the complete date record of all migrants that have returned to his station after an absence of a season, and of each non-migrant which has continued to repeat from one breeding season to another. The following actual records at Altadena suggest a simple form for such report:

Golden-crowned Sparrow	6645	ad	1922, Feb. 2, 4, Mar. 11, Dec. 5, 22; 1923, Jan. 31, Apr. 15, 25, Oct. 31, Nov. 1; 1924, Feb. 1.
House Finch	52060	juv	1923, July 21, Oct. 21; 1924, Apr. 17, July 12, Sept. 19.

This, by the way, is a very effective method of keeping one's own record, best where each species has its separate pages. Your reports should, of course, give the locality.

2. Migration. *Zonotrichia leucophrys*, subsp., and *Zonotrichia coronata*. Will those who were alert for the arrival of the white-crown and golden-crown waves and made a memorandum of their first appearance, forward details, including exact location of first record with description of local associations, altitude, and general topographical relationships.

3. Baits. Of direct interest to western banders will be a tabulated list of baits which have been used with success within the Western Province. Will each bander please send in a list of the baits used at his stations, the birds which have been attracted by each sort, and observations of interest in regard to baits and their use.

4. Traps. In like manner any new trap ideas or applications of traps by western banders should have early description in this column.

As copy must be written up in November, an early response will be appreciated.

Thurber Juncos Banded in the San Bernardino Mountains.—From August 17 to 24, 1924, banding operations were carried on at Bluff Lake by Miss Jessica A. Potter, Mrs. Ella H. Ellis, Mrs. Law and myself. Bluff Lake is a near-level meadow at 7500 feet altitude in the San Bernardino Mountains of southern California. In late summer it is the assembling place for great numbers of ground feeding birds, among which Thurber Juncos (*Junco o. thurberi*) probably outnumber all the rest.

Each day, except on August 23, Miss Potter and Mrs. Ellis trapped during the latter half of the afternoon at a single station (Fuller's Gulch), on the south edge of the meadow near its east end. They worked on opposite sides of the shallow arroyo, in which there was water. On August 17 and 24 Mr. Wright M. Pierce assisted. Much of the time, 22 Potter Traps and 2 Western Traps (6 compartment) were used. Finely ground "chick feed" was used as bait.

At first the birds paid little attention to the bait, with a consequent paucity in birds caught. After each day's work bait was scattered about the spots where traps were used. By the third day the Juncos had learned to look for the chick feed and after that the banders were kept busy. The portion of the meadow where operations were conducted had been made fallow by cattle and ground rodents, and bait was conspicuous against the dark earth. Juncos seemed to feed over these fallow areas with as much interest as they did grassy areas, and spent much time in and about the fields of "skunk cabbage" (Veratrum) which was at this time laid flat by frost. The work day by day is outlined in the following tabulation:

Fuller's Gulch	Ellis				Potter			
	Adult	Juvenal	Total	Repeats	Adult	Juvenal	Total	Repeats
August 17	0	1	1	0	0	1	1	0
18	6	8	14	0	0	2	2	0
19	4	14	18	2	5	13	18	2
20	8	37	45	18	9	18	27	8
21	0	14	14	15	5	24	29	9
22	1	12	13	15	7	7	14	16
24	0	10	10	51	2	13	15	27
	19	96	115	101	28	78	106	62
At other stations	1	4	5	3	3	4	7	6
Totals	20	100	120	104	31	82	113	68

On August 24 Mrs. Myrtle S. Edwards joined our party and banded four Juncos at nearby new stations. Later, on September 4, 5, and 7, Pierce again trapped at Fuller's Gulch and banded 62 more Juncos and retook 71 individuals which had been banded by Ellis, Potter and Law.

Of the birds that Mrs. Ellis banded, she recorded 16⅔ per cent as adult, or 1 adult to 5 young. Miss Potter's banding yielded over 27 per cent of adults, or 1 adult to 3 young. The daily take varied from 50 per cent of adults to 100 per cent of juvenals: a splendid illustration of the futility of averages when applied to bird populations and based on individuals captured.

The personnel of these flocks of Juncos must be purely fortuitous at this season. Family ties seemed to be entirely broken except for an occasional late-born youngster. The groups, if they can be called groups, were constantly milling about over any part of the meadow, and they did not leave a spot in the same order or numbers in which they arrived. From numbers feeding on open ground scattering individuals frequently left without disturbing many which remained. But when, as happened every little while, the sharp alarm bark of ground squirrels started a general stampede, every Junco in the meadow dashed to the nearest pine cover, and after a few minutes drifted back into the meadow like falling autumn leaves.

We noted a daily flight toward the meadow over and among the pine tops of the nearby slopes on the south. This began in the dim morning twilight and continued for an hour or so. We received no impression that there was any definite return movement. It was as if there was a daily influx to the big meadow of families which had become ripe for travel. At evening dusk Juncos were going to roost in numbers in the foliage of the pines that border the meadow.

Lower down, at his cabin on Red Ant Creek, at about 6600 feet altitude, on the slope south of Bear Lake and about a mile west of Pine Knot (post-office), Pierce banded 186 Juncos between August 3 and September 12 and handled 215 repeats. With these were the following:

Band A6397, Ellis, Bluff Lake, August 21.
Retaken by Pierce, Red Ant Creek, August 27, 29, 30, 31, and September 1.

98738, Ellis, Bluff Lake, August 18.
Retaken by Pierce, Red Ant Creek, September 10.
A8051, Potter, Bluff Lake, August 21.
Retaken by Pierce, Red Ant Creek, September 10 (twice).
A6490, Pierce, Bluff Lake, September 5 and 7 (twice).
Retaken by Pierce, Red Ant Creek, September 10 (twice) and September 12.

From Bluff Lake, Pierce's banding station at Red Ant Creek is about two miles east and a mile north, and the immediate drainage is north and west of north. A line drawn from Bluff Lake to the Red Ant Creek station would cross several canyons which empty into Bear Lake. One might expect a ground feeding bird of riparian preferences to drift down water courses as it retires from the high mountains. The recoveries recorded above, however, indicate indifference to local topography and a drift eastward across canyons and toward the desert. The record is in itself a meager one to be sure, 4 recovered out of 314 Juncos banded at Bluff Lake, and possibly indicates only one radius of a general scatter, but it is a gratifying start and indicates the possibility in quantitative banding when stations become numerous.

Of only less interest is the fact that Pierce saw two banded Juncos at Bluff Lake September 28. Why do some go and others remain?—J. EUGENE LAW, *Altadena, California, September 30, 1924.*

EDITORIAL NOTES AND NEWS

The editors of THE CONDOR are fortunate in being able to count on ready help in time of special need. Right now, we are indebted to our fellow Cooper Club member, Mr. Frank N. Bassett, for preparing the volume index, which terminates the present issue.

Two books lately published by H. F. & G. Witherby (London, 1924), and which should prove of interest to American bird students, are Dr. John M. Dewar's "The Bird as a Diver" (8vo, 173 pp.) and Dr. George C. Low's "The Literature of the Charadriiformes from 1894-1924" (8vo, 220 pp.). Two offerings of more diverse aim and content in the same general field could hardly be imagined. Dewar's book deals with the behavior of living birds and limits the subject further to the underwater activities of diving fowl. The author records the duration of 5991 dives, of 23 species—ducks, cormorants, grebes, loons, alcids, and coot. Figures in several other respects are given, and a definite "time-depth relation" is worked out. Incidentally, it appears that the Little Auk is the most efficient diver. Low's book is systematic as well as bibliographic, and brings the history of the one Order dealt with, the shore-birds, down, from the year of completion of volume XXIV, 1896, of the British Museum Catalogue of Birds, to the end of 1923. Any student essaying to do thorough work with the shore-birds must henceforth be supplied with this important help. The two Witherby books just noticed show each of them careful work both in compilation and printing.

Speaking further of bibliography, there is real sport in collecting titles in the field of some selected subject. There is mental activity of a very pleasant sort in seeking out what has been written in a particular field, down through time, as the subject has developed. The "hunt" results in a growing "collection" of titles (each supplemented by one's own critical or explanatory notation, which may become a brief digest of the article in important instances). There is a real thrill when the pursuer gets a clue to some obscure title and "runs it down," to find that it may be of much importance, systematically, biographically or historically — or, on the other hand, worthless! It is astonishing how often the seeker finds that presentations, theories, ideas, and sentiments appearing in our current literature have been anticipated, perhaps not once but many times. It is a good antidote for any prideful tendency that one may have toward announcing "discoveries" to find now and then that his own supposed discovery has been set forth long ago and has, perhaps, been published to the world in better language than he could himself employ.

The growing appeal of natural history to people of otherwise widely diverse interests is shown on the Pacific Coast by the increasing activity of a number of societies devoted to various branches of this

subject. There are some societies of long standing that are growing in membership to a marked degree, while additional organizations have been started at various points in recent years. The Pacific Northwest Bird and Mammal Society has headquarters in Seattle; in Vancouver there is the Vancouver Natural History Society, and in Victoria, the Natural History Society of British Columbia and the British Columbia Ornithologists' Union. The Pacific Northwest Bird and Mammal Society and the British Columbia Ornithologists' Union each publish a mimeographed journal, of limited distribution but well edited and containing articles of a distinctly superior type. This bespeaks praiseworthy activity on the part of the naturalists of the northwest, mostly amateurs in the sense that natural history is more or less of a recreation with them; but it does seem a pity that the writings of these observers should not be put into more permanent form. Perhaps the time is ripe for the establishment of a regularly published journal of natural history in the northwest, drawing upon the combined membership of the several societies of the region. If this cannot be done, it seems desirable that important papers be published in some of the established periodicals, reserving for the mimeographed club journals items of local or club interest. The Canadian Field-Naturalist, for example, covers the whole of Canada, and publishes upon other subjects besides ornithology. The scope of THE CONDOR is ornithology of western America, which, of course, includes the whole Pacific coast. It is important, certainly, that these and other similar journals be supporfed to the utmost by all who are interested in the subjects they cover, and it seems a pity that money and energy be expended on mimeographed "publications" which, however important and interesting their subject matter, are not of real bibliographic standing.

MINUTES OF COOPER CLUB MEETINGS

NORTHERN DIVISION

AUGUST.—The August meeting of the Cooper Ornithological Club, Northern Division, was held at the Museum of Vertebrate Zoology, Berkeley, at 8 o'clock on the evening of August 28, 1924. Vice-President Lastreto presided. The following members were present: Misses Burk, Flinn, and Lindemann; Mesdames Bogle, Grinnell, Delport, Harding, Kelly, Mexia, Schenck and Schlesinger; Messrs. Chaney, Clabaugh, Cooper, English, Grinnell, W. Grinnell, Hall, La Barthe, Lastreto, Mailliard, Rankin, Simpson and Trost. Visitors were: Misses Brubaker, McGugin, Pickard, Uhlemeyer; Mesdames Chaney, Furlong and Hall.

Minutes of the Northern Division for July were read and approved. Minutes of the Southern Division for June and July were read. The name of Miss Winifred McGugin, 2525 Hearst Avenue, Berkeley, was proposed for membership by Edward P. Rankin.

Being called upon by the chair for notes, several members recalled pleasant vacation experiences. Miss Flinn described vividly the commendable solicitude of miners beginning the reworking of an old mine near her vacation headquarters, for the nest and eggs of a wren which had chosen to build upon a dump-cart necessary for the carrying of ore. Mr. Mailliard made the surprising report of the finding of a live Farallon Rail on the sidewalk in front of the San Francisco Orpheum.

The talk of the evening was given by Mr. E. Raymond Hall who spent the ten weeks between May 15 and August 1 studying the fish-eating birds of Pyramid Lake, Nevada, under the auspices of the Biological Survey.

Mr. Hall's findings brought clearly before his audience a realization of some of the overwhelming odds against which Nature works in her effort to perpetuate species in areas invaded by civilized man. Adjourned.—HILDA W. GRINNELL, *Secretary*.

SEPTEMBER.—The regular monthly meeting of the Cooper Ornithological Club, Northern Division, was held at the Museum of Vertebrate Zoology, Berkeley, at 8 o'clock on the evening of September 25, 1924. Vice-President Lastreto presided. The following members were present: Misses Beaman, Van Gaasbeek and Wythe; Mesdames Bogle, Grinnell, Mead and Schlesinger; Messrs. Bourne, Bunker, Clabaugh, Evermann, Grinnell, W. Grinnell, E. R. Hall and Simpson. Visitors were Mesdames Bunker and Hall; Mr. and Mrs. van Rossem of Pasadena, and Mr. Wilfred H. Osgood of the Field Museum of Natural History, Chicago. Minutes of the Northern Division for August were read and approved. Minutes of the Southern Division for August were read.

Members responded to roll call with reports of vacation experiences. Miss

Margaret W. Wythe gave a carefully prepared account of her vacation outing in General Grant Park, listing as the most interesting of the 45 species of birds noted by her a Pileated Woodpecker, three White-throated Swifts and a family of half-grown Sierra Grouse.

Mr. Clabaugh reported the counting of 77 Lewis Woodpeckers on a three-hour walk taken in the vicinity of Hat Creek, near Mount Lassen. Mrs. Mead recorded the largest number of species found in one locality by a single member, having listed 54 species in the vicinity of Salmon Lake. Roger Simpson reported upon birds and mammals seen in Glacier National Park, Mr. Bunker and Willard Grinnell reported from Yosemite National Park, and Miss Van Gaasbeek reported from the vicinity of Quincy, Plumas County.

Those present at the meeting were so fortunate as to hear an account of the founding, in 1893, of the Cooper Ornithological Club, given by Mr. W. H. Osgood, one of the four charter members and the Club's first president. Since THE CONDOR is the official organ of the Cooper Club, and has been so for 26 years, it was a surprise to learn that another magazine, *The Oologist*, was responsible for the founding of the Club. While a student at the University of the Pacific, Mr. Osgood happened upon a copy of *The Oologist*, and reasoning that the owner must be a kindred spirit, lay in wait for him. A fellow student, Fred Schneider of San Jose, proved to be the owner of the copy and a collector of birds' eggs. Soon thereafter, Chester Barlow and Harry R. Painton joined with these two to form the Cooper Club, each of the four becoming an officer. Adjourned.—HILDA W. GRINNELL, *Secretary*.

SOUTHERN DIVISION

AUGUST.—The Southern Division of the Cooper Ornithological Club held its regular monthly meeting at the Los Angeles Museum, Exposition Park, Thursday, August 28, 1924, at 8 P. M. President Wyman occupied the chair and the following members were present: Misses Howard and Potter; Mesdames Ellis and Schneider; Messrs. Campbell, Chambers, Cookman, Nokes, Widmann and Wyman. Mesdames Chambers and Wyman and Mr. Rogers were visitors. Minutes of the July meeting were read and approved. June and July minutes of the Northern Division were read by title only.

The following applications for membership were read: Drummond Aitken, 766 Milwaukee St., Denver, Colo., by W. H. Bergtold; Edmund J. Sawyer, Yellowstone Park, Wyo., by M. P. Skinner; Mrs. Elinor B. Perry, 254 Main St., Hayward, Calif., by H. C. Bryant; Minot Davis, 701 North E St., Tacoma, Wash., by Ralph Hoffmann; Walter J. Ericksen, 2311 Barnard St., Savannah, Ga., by W. Lee Chambers; Robert H. Wilkinson, 853 Burck Place, Los Angeles, Calif., by H. C. Bryant; Oscar E. Baynard, Box 104, Plant City, Fla., by W. Leon Dawson; Harry L. Crockett, 948 Twelfth St., Douglas, Ariz., by W. Lee Chambers; James Alexander Neilson, Wheatland, Wyo., by Lieut. L. R. Wolfe; Ada Belle Copeland, 1103 White Ave., Grand Junction, Colo., by W. Lee Chambers; Philip Norman Baxter, 159 Churchill Ave., Palo Alto, Calif., by J. O. Snyder; James Seabrook Dyson, Teglirson Ranch, Alexis Creek, Chilcotin, B. C., by W. Lee Chambers; Haven D. Howatt, 1922 F St., Eureka, Calif., by George H. McDaniel; James L. Ortega, Yountville, Napa County, Calif., by W. Lee Chambers; Dan Patton, Midnapore, Alberta, Canada, by W. Lee Chambers; Miss Emily Smith, Route 1, Box 56, Los Gatos, Calif., by W. Lee Chambers.

Two members of the Club who had just returned from a week's trip to Bluff Lake in the San Bernardino Mountains told of their experiences in banding in that vicinity. Mr. Wyman mentioned having received a letter from Chester Lamb, who has been collecting in Lower California since January. Mr. Lamb expects to be back in time for the November meeting, when it is hoped he will give a talk on conditions in that part of the country.

Mr. Charles H. Rogers, curator of the natural history museum at Princeton University, was a guest of the Club. In response to a request for remarks, he gave an interesting account of his recent observation of birds around Santa Barbara, related some of his experiences in New Jersey, told of the condition of the Heath Hen in Martha's Vineyard, and, in conclusion, spoke briefly of the bird-life of the tropics.

Mr. Alfred Cookman showed some pictures taken on a trip which he and Dr. H. J. Andrews had recently made to Mt. Langley, a high peak in the southern Sierra Nevada. Inspection of a tray of shore bird skins concluded the evening. Adjourned.—ELLA H. ELLIS, *Secretary*.

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* Page 102, *Zonotrichia leucophrys leucophrys* should read *Zonotrichia leucophrys gambeli*.—Ed.

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